Abstract Submitted
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Intense-Field Photoionization of Analogous Molecules by Focused Ultrafast Pulses[1] JOSHUA BECK, University of Nebraska - Lincoln, TIMOTHY SCARBOROUGH, The Ohio State University, COLLIN MCACY, CORNELIS UITERWAAL, University of Nebraska - Lincoln — The nature of a specific substituent in analogous molecules can dramatically affect their photodynamics. In previous work, we have shown that the dissociation rate for C-X bond breaking in the monohalobenzenes is strongly dependent of the value of X [*Phys. Chem. Chem. Phys.*, **13**, 13783 (2011)]. We report on the ionization and fragmentation of analogous molecules in the focus of 50-fs, 800-nm laser pulses. Ion mass spectra are recorded as a function of intensity in the absence of the focal volume effect [*Phys. Rev. Lett.* **100,** 023002 (2008)]. Targets include carbon dioxide (CO_2), carbon disulfide (CS_2), and the substituted monoaromatics aniline (Ph-NH_2) and nitrobenzene (Ph-NO_2). We observe that the onset of ionization for CO_2 and CS_2 is dominated by parent ions. Ionization is insignificant for intensities that maximize alignment of CS_2, which validates ultrafast electron diffraction experiments from aligned CS_2 [*Nature Comm.* **6,** 8172 (2015)]. We observe REMPI in aniline including M^+, M^{2+}, ... with suppressed fragmentation. We observe minor amounts of parent ions and a propensity of fragmentation for nitrobenzene [T. Scarborough (in press) *Phys. Chem. Chem. Phys.*]. Recent work at larger wavelengths will be discussed.

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Joshua Beck
University of Nebraska - Lincoln

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